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ABSTRACT

This reference guide for program trainees provides basic information about some allied health professions, as well as a guide to information for developing effective assisting skills in counseling minority and low socio-economic students. This guide is divided into the following major sections: (1) Preface; (2) Introduction; (3) Providing Functional Assistance to Students to Stimulate Interests in Pursuing Allied Health Careers; (4) Financial Aid; (5) General Descriptions of Allied Health Professions; and (6) Bibliography. (Author/JLL)

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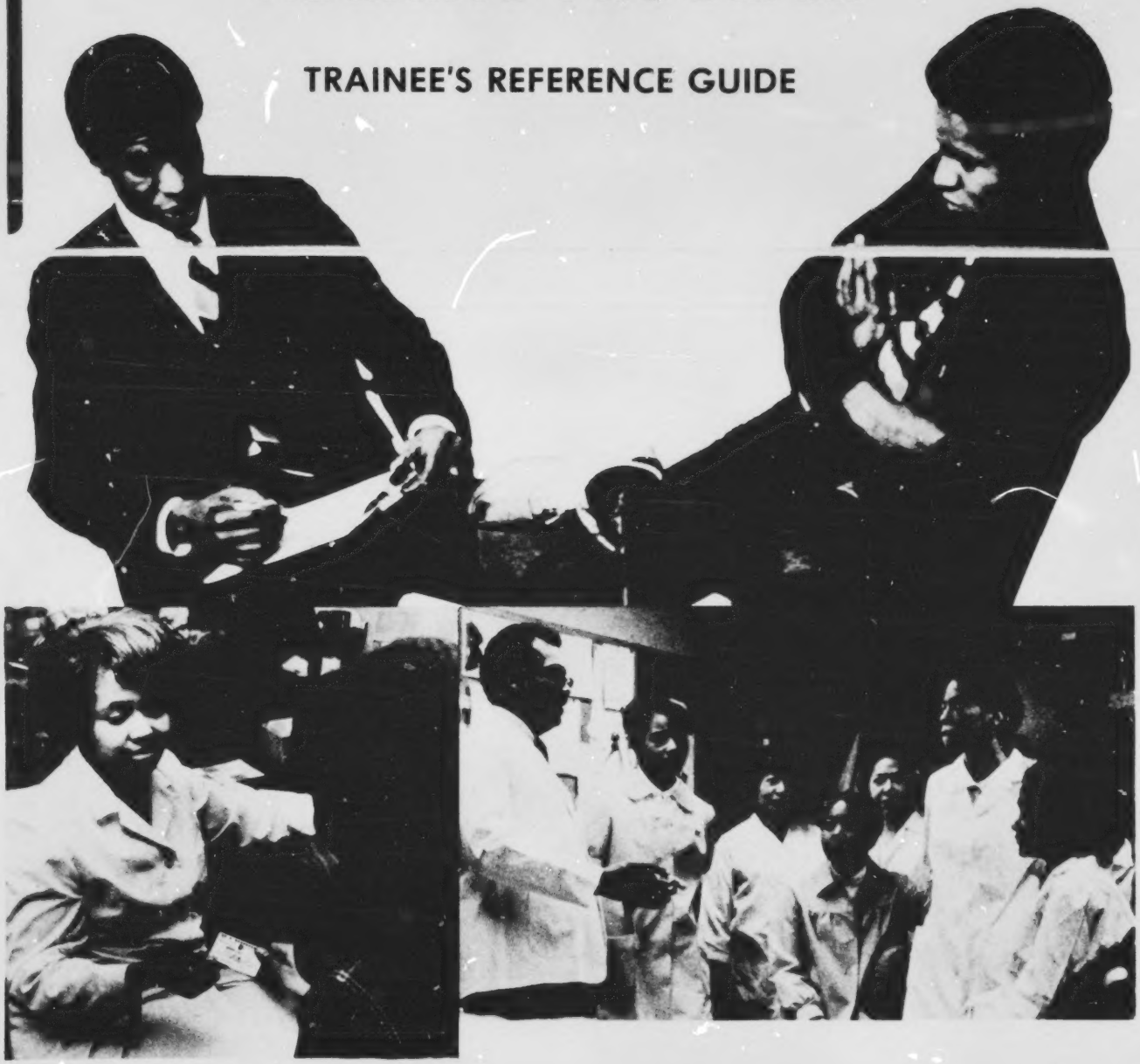
ALLIED HEALTH COUNSELOR TRAINING PROGRAM

TRAINEE'S REFERENCE GUIDE



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ALLIED HEALTH COUNSELOR TRAINING PROGRAM

TRAINEE'S REFERENCE GUIDE

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PREFACE

Over the past decade the trend toward preventive medicne has caused an increase in the use of allied health professionals, Dental hygienists, inhalation therapists, and medical technologists, to name a few, are accepted as essential personnel in most hospitals and other health care facilities. Although these professions have increased in number, minority participation in these professions is low.

The Division of Associated Health Professions of the Health Resources Administration funded a study that was completed in 1969. The study which was entitled "Final Report and Impact of Allied Health Basic Improvement Grant Program on Health Education" by Programming Methods, Inc. disclosed that there is a disproportionate representation of minorities [Blacks in particular] in the allied health professions. The report recommended that an examination of barriers to entry by minorities be conducted with a view to bringing the 3% enrollment of Blacks in the allied health professions close to 11% [the estimate of Blacks in the U.S.]

In the fiscal year 1974-75, the Institute for Services to Education (I.S.E.) was awarded a contract to develop a Prototype Allied Health Counselor Training Program by the Division of Associated Health Professions, Bureau of Health Resources Department. The training program was conducted at the Meharry Tennessee State Complex in Nashville, Tennessee. The trainees were ten high school and college counselors and science teachers from various cities.

This reference guide for program trainees provides basic information about some allied health professions, as well as a guide to information for developing effective assisting skills in counseling minority and low socio-economic students.

FOREWORD

That minorities, particularly Blacks, have traditionally been excluded from the mainstream of society and its institutions is nothing new; only the machinery has become more sophisticated, and consequently, more difficult to change. In the past we have had to deal with discriminations on the basis of color, class, and intellectual and moral inferiority. Today, we must deal with such things as medical and law school admissions tests which are designed in such a way as to make the same kinds of judgements that were made in the past by just looking at you. The result is always negativism and the destruction of one's self-image.

As Counselors of the Allied Health Program, you will experience these same barriers as you attempt to change the attitudes and career aspirations of your students and the attitudes of the institutions with which you work and the society at-large. Your greatest asset will be in changing this negativism to optimism by:

a) encouraging a positive self-image and the fortitude to acquire the skills provided by the program

b) improving the educational process that has tended to enhance, if not produce, low-self-concept of minority students with respect to science

c) finding those modern methods which maintain the kinds of traditional standards and approaches to learning that enables us to communicate the special disadvantages that are associated with our culture, without perpetuating the hopelessness and futility that is so often associated with these disadvantages

d) assimilating knowledge, collecting data, and distributing information on the broad range of fields in Allied Health that will enable young people to map out a path toward a definite goal in the allied health sciences.

One of the most interesting things about this program is the way in which multiple kinds of resources have been organized in order to get the job done. You are building, what has never been done before, functional relationships between school systems, medical schools, and colleges in an effort to make something new happen.

The beginning of this entire process rests in the information contained in this training manual. A continuous self-education process improves your knowledge and importance to yourself, to your colleagues, and to your program.

Elias Blake, Jr.
President, ISE

CATEGORIES OF ALLIED HEALTH PROFESSIONS

Dental Services - Occupations in these services prepare persons to assist dentists in a variety of dental practice activities and/or to fabricate dental prosthetic and orthotic devices.

Examples:
- Dental Assistant
- Dental Hygienist
- Dental Laboratory Technician

Dietary and Nutritional Services - Personnel translate nutritional needs into the selection, purchasing, preparation and service of appropriate foods; along with maintenance of equipment, sanitation, and cost control. They provide nutritional education to individuals and groups, and serve as nutritional consultants to health facilities and communities.

Examples:
- Dietetic Technician
- Dietitian

Environmental Control Services - Occupational tasks in these services range from pollution control and surveillance of food, water, and air resources to monitoring environments and activities where ionizing radiation is in use..

Example:
- Sanitarian

Laboratory Services - Occupations in this group include a variety of specialities and sub-specialities which require knowledge and skill in clinical laboratory procedures.

Examples:
- Certified Laboratory Technician
- Medical Laboratory Technician
- Cytotechnologist
- Medical Technologist

Medical Instrumentation and Machine Operation - Persons who service, maintain, operate, and/or repair medical equipment and instruments that are designed to supplement or support body functions, and which are used in diagnostic and/or therapeutic procedures.

Examples:

Electrocardiographic Technician
Electroencephalographic Technician
Respiratory (Inhalation) Technician
Respiratory (Inhalation) Therapist

Medical Records and Office Services - Personnel plan, organize and manage patient information systems and statistical reports for medical and administrative staff use and health care research.

Examples:

Medical Record Technician
Medical Record Administrator

Radiological Services - These occupations prepare personnel who expose, develop, and critique diagnostic X-ray films, and who assist in therapeutic procedures requiring radio-isotopes or radiation.

Examples:

X-ray Technologist
Nuclear Medical Technologist

Rehabilitation Services - These are careers in which personnel administer therapeutic and rehabilitative procedures designed to restore patients to optimum activity levels.

Examples:

Physical Therapy Assistant
Physical Therapist

Vision Care - Personnel work with or carry out the prescriptions of the ophthalmologist. Their duties include ophthalmic examinations, treatment, and correction of ophthalmic disorders by physical or mechanical measures.

Examples:

Optometric Assistant
Optometrist

Miscellaneous - Personnel perform a variety of supportive services.

Examples:

Medical Assistant
Operating Room Technician
Pharmacist
Veterinarian

INTRODUCTION

The reference guide provides basic information for the development and expansion of knowledge regarding allied health career programs. It also provides a foundation for the collection of further information by the reader. The primary function of the manual is to introduce the reader to certain areas that must be considered in counseling minority students about allied health careers. A short narrative orienting the reader to the subjects is provided, followed by suggested references.

The topics covered in the guide are basic information about several health professions, financial aid, methods of assisting minority students, career development, assessment of student capabilities and competencies, and peer counseling.

Although this guide contains the most up-to-date information available at the time of its publication, it is strongly recommended that counselors and other educators working with minority and low socioeconomic students contact the respective allied health agencies for any possible changes in program requirements, training, and employment prospectives.

Purpose and Use

The reference guide is intended to be used by the trainees (participants) of the training program. It is to be used as an orientation tool to motivate study and research of the subjects presented in the guide.

PROVIDING FUNCTIONAL ASSISTANCE
TO STIMULATE INTEREST
IN PURSUING ALLIED HEALTH CAREERS

PROVIDING FUNCTIONAL ASSISTANCE TO STUDENTS TO STIMULATE INTEREST IN PURSUING ALLIED HEALTH CAREERS

Two important aspects of an allied health careers counseling program are (1) developing the abilities of counselors and teachers to stimulate student interest in allied health careers; and (2) providing constructive assistance to those students who become interested in pursuing these careers.

The first phase usually involves (1) getting the students interested in allied health careers; (2) providing access to information about programs, courses, and careers; (3) advising students about options which currently exist in their immediate academic environments; (4) helping students to understand all factors which will affect their career development; and (5) advising students about logical programs and course selection.

The second phase focuses upon post-enrollment counseling and retention. The strength of the advisor's input depends on the scope of information that he/she has about the students' program and courses. The advisor must be able to assess what the students are doing and how well they are doing. If no problems exist, he/she should provide support and make suggestions for continued development.

If students are having problems in successfully pursuing their program, the advisor must be able to determine the causes and help the student develop strategies for eliminating these problems. Problem areas may include inadequate study skills for specific courses; deficiencies in background required for the course; an overloaded schedule, poor communication or rapport with instructor (students may not be asking questions when they do not understand subject matter, or they may be getting inadequate

answers); negative peer influences; poor performance on written and oral tests due to lack of test-taking skills and/or lack of information.

In some allied health careers training programs the students do not have the option of either dropping or taking a course out of sequence (in a given battery of courses) irrespective of their personal interests and performances. The advisor should be able to discuss, when necessary, the interrelatedness of courses and subject matter to help the students understand how certain courses form a foundation for more advanced courses.

Assisting Students in Groups

Several objectives of an allied health career counseling program can be met by using groups with common interests to help implement these objectives. One counselor can work with both large and small numbers of students to accomplish several tasks such as:

1. imparting general information;
2. surfacing common problems that a number of students might have;
3. providing encouragement and reinforcement; and
4. recruiting students to take courses, which will prepare them to pursue careers in allied health professions.

Peer Counseling

Peer counseling has proven to be an effective method of assisting minority students with special concerns and/or problems. The use of peers omits the added strain of dealing with adults or an authority figure in a counseling relationship.

A review of the literature by Stephan H. Scott and Richard W. Warner, Jr. (1974) shows that peer counseling programs were usually established:

1. in crises intervention;

2. to provide information services;

3. to develop interpersonal and social skills;

4. to improve academic and decision-making skills; and

5. simply to provide friendship.

The review also reveals that peer counselors are utilized in the following ways:

1. adjuncts to the counseling program;

2. equal responsibility to the professional counselor; and

3. conjoint role in a group setting.

In the development of an awareness of allied health careers,

e useful in the recruitment of students into certain activities,

th career clubs. Retention of these same students is usually achieved

he assistance of peer counseling.

e suggestions for effective utilization appeared in the review of

. Warner,

> Effective peer counselors appear to be those who not only have a desire to help others but also have effective adjustment and interpersonal skills.
>
> Peer counselors must be perceived by those they work with as potentially helpful persons. That is, they are expected to have experiences, skills, or knowledge appropriate to their clients' needs.

3. Research seems to indicate that peer counselors are more helpful when they are from the same ethnic and socioeconomic background as their clients. There is also some indication that peer counselors may be able to reach groups not ordinarily inclined to seek counselors.

4. Training peer counselors has generally involved the development of interpersonal or human relations skills. Carkhuff's (1971) model for human relations training has been used extensively for this purpose. His publication, "The Art of Helping" (1972), should also be a useful training tool.

5. Training should include one-to-one and/or group counseling experiences in informal situations, supplemented by the acquisition of appropriate information and knowledge of referral sources.

6. The peer counselor should also have access to a professional counselor for consultation or referral. The evidence at present does not warrant the use of peer counselors as a completely separate entity.

7. Peer counseling appears to be effective in the areas of academics (study habits, curriculum choice, educational goals), social-adjustment skills, and provision of information. Peer counselors are especially effective for students entering new academic environments.

8. In general, peer counselors and faculty who work with them report as much (or more) benefit and satisfaction with the peer counseling programs as do those persons the programs are designed to help.

9. Research on peer counseling has been almost exclusively short-term (e.g., one semester); the long-range effects of peer counseling are yet to be studied.

Assessing Student Capabilities and Competencies

Within the past decade it has become apparent that intelligence testing of minorities needs to be critically reevaluated. In light of recent studies, the validity of the testing has been contested.

Manfred Alder (1968) has stated several considerations when interpreting the test of minority youths:

1. Cultural factors
   - because of the cultural differences it becomes an almost hopeless task to attempt to measure differences between ethnic groups with presently available intelligence tests
2. Socioeconomic class
3. Language factors
4. Sampling factors
5. Level of schooling
6. Motivation

7. Rapport with examiner
8. Physical factors, e.g., eyesight
9. Race of examiner
10. Environmental opportunity

Other considerations are:

1. Test-taking skill development
2. Anxiety involved in test-taking
3. Limitations of tests

If identification and development of human resources are to be accomplished, it will be necessary to approach with caution the use of tests as sole measures of academic potential. Therefore, other means of assessing students must be developed. Several methods are now being used. These methods should be developed so that they may be used as equal determinants, with testing, in assessing minority student potential and competence.

Examples:

1. grades
2. work situation testing
3. teacher evaluation

FINANCIAL AID

FINANCIAL AID

Introduction

In order for students to take full advantage of the many types of financial aid available, they must know when, where, and how to apply for assistance. Counselors should keep abreast of necessary information and share this knowledge with students. It is especially essential that minority students be well enlightened about financial aid programs because they are the ones who can least afford the cost of higher education.

The number of blacks who take advantage of financial aid is very small. Black students are often reluctant to apply for financial aid because neither they nor their parents want to fill out forms which require a lot of information about salaries, sources of income, etc. They are especially skeptical about filling out the Parents' Confidential Statement (PCS), because it is lengthy and, for some, too complicated. Other factors, such as:

1. non-communication between students and parents;
2. students not living with natural parents; and
3. lack of interest or indifference of guardians make the Parents' Confidential Statement taboo.

Another factor which discourages black students from seeking financial aid is the thought of having to repay the money. Many students do not want to owe a large amount of money when they leave college. However, if they are aware of scholarships, grants, and long-term-low interest rate loans that are available and the requirements for each, they may decide to pursue their educational interests.

FINANCIAL AID

There are many types of student financial aid, however, the basic types of financial aid are:

1. Gift assistance, including scholarships and grants
2. Loans
3. Employment opportunities

Students do not have to repay gift aid and employment, but they do have to repay loans. They are responsible for repaying the principal plus the interest on the loans.

Each type of financial aid has its' own source(s) and requirements.

1. Gift Assistance

- Scholarships and Grants are awarded by many different organizations such as the American Legion, Kiwanis, Elks, Rotary, Lions Clubs; national corporations, local businesses and industries; professional societies; ethnic and minority groups (e.g. NAACP), and social and service fraternities and sororities.

- Military benefits are available for veterans who wish to pursue educational programs under the GI Bill of Rights.

- Grants and awards from state governments are awarded to state residents in certain fields of study after competitive testing.

- Supplemental Educational Opportunity Grant Program (SEOG) - This type of aid is primarily for students who are coming out of high school and entering undergraduate universities for the first time, and whose parents can contribute hardly any money toward college expense and who would otherwise be unable to attend college. The amount of aid given

varies and it must be matched by the school in the form of scholarships, loans, grants and/or temporary employment.

- Basic Educational Opportunity Grants (BEOG) are for students who were not enrolled in a postsecondary educational institution before April 1, 1973. The amount a student receives is based on educational costs minus family contributions. Application maybe made through high school or college guidance counselors or Post Office Box R, Iowa City, Iowa.

2. Loans

- National Direct Student Loan Program (NDSL) -(formerly called National Defense Student Loan) - Is a low interest loan for students who are enrolled at least half-time in participating postsecondary institutions. The amount of financial aid a student receives is determined by each participating college. One may take up to ten years to repay the loan at the current interest rate. If one joins the military, Peace Corps, or Vista after leaving school, he/she is given an extension of three years to repay the loan. If one chooses to teach, he/she may have up to 100 percent of the loan cancelled if he/she teaches in certain programs or schools. (HEW Fact Sheet, DHEW Public No. (OE) 75-17907).

- Guaranteed Student Loan Program - Enables students to borrow directly from a local bank, savings and loan association, credit union, or other participating loan institution. The loan is guaranteed by a state or private nonprofit agency or insured by the Federal Government. The Federal Government usually subsidizes the full interest while a student is enrolled in school and until he begins repayment. The borrower has nine (9) to twelve (12) months after leaving school to begin repaying the loan.

The maximum one may borrow is $2,500 a year. The total one may

borrow for undergraduate or vocational study is $7,500. The total is $10,000 for graduate study alone or in combination with undergraduate study. (Health Careers Guidance Manual)

A borrower may take up to ten years to repay a loan, depending on the amount borrowed and the payments. However, the minimum a borrower may pay per year is $360.00. (Health Careers Guidance Manual)

For further information, contact: Schools, Campus Financial Aid Offices, State Guarantee Agencies, Regional Offices of the U.S. Office of Education, and participating lenders (e.g. banks, credit unions).

- State Loans - Usually are long term and have low interest rates. They are available through state higher education agencies or through individual state colleges and universities. These loans are usually limited in quantity and have rigid eligibility requirements.

3. Employment

- The College Work-Study Program (CWS) - Was developed for the college or vocational student who cannot afford the total cost of receiving an education. The CWS program provides the eligible student with work at participating agencies (non-profit public or private agencies). The student works a maximum of 40 hours per week on campus or in the community.

Job assignments and work hours per week are dependent upon: (1) the student's academic status; (2) total financial needs; (3) general health; and (4) class schedule. As a rule, salary is at least equal to the current minimum wage. (Health Careers Guidance Manual)

For further information, the student may contact the individual schools.

Serious consideration should be given before a student decides to obtain a part-time job as his course load may require a great deal of studying. A lighter course load may be necessary for some students.

Places and people to contact: relatives, friends, teachers, student unions, financial aid offices, and state and federal employment agencies.

Other sources: Bulletin boards, and campus and local newspapers.

- Other Federal Aid Programs - Some selected professional fields of study have financial assistance available to students entering specific fields of study (e.g., assistance is available for students in the health fields through the Department of Health, Education and Welfare). For additional information about aid for particular fields of study, contact the financial aid office of the school in which you are interested.

- Once a student decides that he or she needs financial aid what steps should be taken?

If in high school:

(1) Select college(s) or vocational school(s)

(2) Apply to chosen school(s) for admission

(3) Obtain information about costs

(4) (a) Learn about scholarship and other student assistance programs, especially those in his/her own state; (b) inquire about fraternal and industrial programs; (c) Check with counselors, teachers, libraries, etc.; (d) Find out if his/her parents' employers or clubs have any loan or scholarship programs.

(5) Apply for these loans or scholarships as soon as possible. Make sure all forms are filled out accurately and completely. Incomplete or inaccurate information may delay the processing of the application.

If in college:

(1) Consult financial aid officer and student job placement office.

(2) Look for a part-time or summer job early.

SOURCES OF LOANS FOR STUDENTS

State Sources of Information on Guaranteed Loans including State Operated Programs:*

ALABAMA

Director of Higher Education
Office of Education, Region IV
50 Seventh Street, NE
Atlanta, Georgia 30323

ALASKA

Student Aid Office
State Education Department
Pouch F. AOB'
Juneau, Alaska 99801

ARIZONA

Director of Higher Education
Office of Education, Region IX
50 Fulton Street
San Francisco, California 94102

ARKANSAS

Student Loan Guarantee
Foundation of Arkansas
1515 West 7th Street / Suite 515
Little Rock, Arkansas 72202

CALIFORNIA

Director of Higher Education
Office of Education, Region IX
50 Fulton Street
San Francisco, California 94102

COLORADO

Director of Higher Education
Office of Education, Region VIII
9017 Federal Office Building
19th & Stout Streets
Denver, Colorado 80202

CONNECTICUT

Connecticut Student Loan
Foundation.
251 Asylum Street
Hartford, Connecticut 06103

DELAWARE

Delaware Higher Education
Loan Program
c/o Brandywine College
P.O. Box 7139
Wilmington, Delaware 19803

*The American Legion Education and Scholarship Program (Americanism and Children & Youth Division) Need a Lift?, Indianapolis, Indiana, 1973, pp. 41-43.

DISTRICT OF COLUMBIA

DC Student Loan Insurance
Program
1329 E Street, NW
Washington, DC 20004

FLORIDA

Director of Higher Education
Office of Education, Region IV
50 Seventh Street, NE
Atlanta, Georgia 30323

GEORGIA

Georgia Higher Education
Assistance Corporation
9 La Vista Perimeter Pk.
2187 Northlake Parkway
Atlanta, Georgia 30084

HAWAII

Director of Higher Education
Office of Education, Region IX
50 Fulton Street
San Francisco, California 94102

IDAHO

Director of Higher Education
Office of Education, Region X
1321 Second Avenue
Seattle, Washington 98101

ILLINOIS

Illinois Guaranteed Loan
Program
102 Wilmot Road
Deerfield, Illinois 60015

INDIANA

Director of Higher Education
Office of Education, Region V
300 S. Wacker Drive
Chicago, Illinois 60606

IOWA

Director of Higher Education
Office of Education, Region VII
601 East 12th Street
Kansas City, Missouri 64106

KANSAS

Director of Higher Education
Office of Education, Region VII
601 East 12th Street
Kansas City, Missouri 64106

KENTUCKY

Director of Higher Education
Office of Education, Region V
50 Seventh Street, NE
Atlanta, Georgia 30323

LOUISIANA (In-State residents)

Louisiana Higher Education
Assistance Commission
Post Office Box 44095
Capitol Station
Baton Rouge, Louisiana 70804

LOUISIANA (Out-of-State residents)

United Student Aid
Funds, Inc.
845 Third Avenue
New York, New York 10022

MAINE

Maine State Department of
Education and Cultural
Services
Augusta, Maine 04330

MARYLAND

Maryland Higher Education
Loan Corporation
2100 Guilford Avenue
Baltimore, Maryland 21218

MASSACHUSETTS

Massachusetts Higher Education
Assistance Corporation
511 Statler Building
Boston, Massachusetts 02116

MICHIGAN

Michigan Higher Education
Assistance Authority
309 North Washington Avenue
Lansing, Michigan 48902

MINNESOTA

Director of Higher Education
Office of Education, Region V
300 South Wacker Drive
Chicago, Illinois 60606

MISSISSIPPI

Director of Higher Education
Office of Education, Region IV
50 Seventh Street, NE
Atlanta, Georgia 30323

MISSOURI

Director of Higher Education
Office of Education, Region VII
601 East 12th Street
Kansas City, Missouri 64106

MONTANA

Director of Higher Education
Office of Education, Region VIII
9017 Federal Office Building
19th & Stout Streets
Denver, Colorado 80202

NEBRASKA

Director of Higher Education
Office of Education, Region VII
601 East 12th Street
Kansas City, Missouri 64106

NEVADA

State Department of Education
Carson City, Nevada 78901

NEW HAMPSHIRE

New Hampshire Higher Education
Assistance Foundation
3 Capitol Street
Concord, New Hampshire 03001

NEW JERSEY

New Jersey Higher Education
Assistance Authority
65 Prospect Street
Post Office Box 1293
Trenton, New Jersey 08625

NEW MEXICO

Director of Higher Education
Office of Education, Region VI
1114 Commerce Street
Dallas, Texas 75202

NEW YORK

New York Higher Education
Assistance Corporation
50 Wolf Road
Albany, New York 12205

NORTH CAROLINA

North Carolina State Education
Assistance Authority
P.O. Box 2688, Chapel Hill
Chapel Hill, North Carolina 27514

NORTH DAKOTA

Director of Higher Education
Office of Education, Region VIII
9017 Federal Office Building
19th & Stout Streets
Denver, Colorado 80202

OHIO

Ohio Student Loan Commission
33 North High Street
Columbus, Ohio 43215

OKLAHOMA

Oklahoma State
Regents for Higher Education
118 Capitol Building
Oklahoma City, Oklahoma 73105

OREGON

State of Oregon Scholarship
Commission
1445 Willamette Street
Eugene, Oregon 97401

PENNSYLVANIA

Pennsylvania Higher Education
Assistance Agency
Towne House, 660 Boas Street
Harrisburg, Pennsylvania 17102

PUERTO RICO

Director of Higher Education
Office of Education, Region II
26 Federal Plaza
New York, New York 10022

RHODE ISLAND

Rhode Island Higher Education
Assistance Corporation
187 Westminster Mall / Room 414
Box 579
Providence, Rhode Island 02901

SOUTH CAROLINA

United Student Aid Funds, Inc.
845 Third Avenue
New York, New York 10022

SOUTH DAKOTA

Director of Higher Education
Office of Education, Region VIII
9017 Federal Office Building
19th & Stout Streets
Denver, Colorado 80202

TENNESSEE

Tennessee Education Loan Corp.
Cordell Hull Bldg., Fl. C-3,
Room 301
Nashville, Tennessee 37219

TEXAS

Director of Higher Education
Office of Education, Region VI
1114 Commerce Street
Dallas, Texas 75202

UTAH

Director of Higher Education
Office of Education, Region VIII
9017 Federal Office Building
19th & Stout Streets
Denver, Colorado 80202

VERMONT

Vermont Student Assistance Corp.
156 College Street
Burlington, Vermont 05401

VIRGINIA

Virginia State Education
Assistance Authority
501 East Franklin Street
Suite 311, Professional Bldg.
Richmond, Virginia 23219

WASHINGTON

Director of Higher Education
Office of Education, Region X
1321 Second Street
Seattle, Washington 98101

WEST VIRGINIA

Director of Higher Education
Office of Education, Region III
Post Office Box 13716
3535 Market Street
Philadelphia, Pennsylvania 19101

WISCONSIN

Wisconsin Higher Education Corp.
State Office Building
115 West Wilson Street
Madison, Wisconsin 53702

WYOMING

Director of Higher Education
Office of Education, Region VIII
9017 Federal Office Building
19th & Stout Streets
Denver, Colorado 80202

*The American Legion Education and Scholarship Program (Americanism and Children & Youth Division) Indianapolis, Indiana. 1973, pp. 41-43.

References on Financial Aid

College Entrance Examination Board, Financing Equal Opportunity In Higher Education. New York. A College Scholarship Service Colloquium Held at Mountain Shadows, Scottsdale, Arizona, November 9-13, 1969.

Health Careers Guidance Clinic (College of Allied Health Sciences), Health Careers Guidance Manual. Philadelphia, Pennsylvania. December 1974.

The American Legion Education and Scholarship Program/Americanism and Children and Youth Division, Need a Lift? To Educational Opportunities. Indianapolis, Indiana: An American Legion Service for Young People, Fall, 1973.

U.S. Department of Health, Education, and Welfare, How to Pay For Your Health Career Education, A Guide for Minority Students. Washington, D.C. Public Health Service, Health Resources Administration, DHEW Publication No. (HRA) 74-8.

U.S. Department of Health, Education and Welfare, Office of Education, HEW Fact Sheet. Washington, D.C.: DHEW Publication No. (OE) 75-17907.

GENERAL DESCRIPTIONS OF ALLIED HEALTH PROFESSIONS

EXPLANATION OF HEALTH PROFESSION MONOGRAPHS

Descriptions of selected allied health professions are provided in this section. An explanation of the general organization of the description is presented here.

Job Description

A description of the duties and tasks performed by the health professional, usually at the entry level.

Preprofessional Course Requirements

A list of some of the courses required for entry or the degrees required for entry. Most allied health programs require a minimum of two years of mathematics, including algebra and geometry. It is important to be aware of the requirements because it is often necessary to take the courses early in high school. This section presents the minimum level and education required for the occupations and the preferred background for entry.

Credentialing

Credentialing of health professionals occurs by these means:

- accreditation of educational programs
- certification or registration of professionals by the specific health profession
- license by a government agency

The three aspects are closely interrelated. State practice acts establish the procedures for licensure, and may also set educational requirements. Professional associations, in most cases, require that the applicant satisfy certain educational qualifications.

Occupational Outlook

The occupational outlook provides information about prospective job opportunities. Information about the future outlook in an occupation is difficult to predict with perfect accuracy. Changes in the size or age distribution of the population, work attitudes, training opportunities, and other factors determine the number of positions and workers available.

The information in the occupational outlook section discusses the national outlook. Job prospects in the regional or local areas may not correspond with the information in the manual. Information is often available on the regional or local outlook from local or state employment agencies.

Table I[1]

Adjective Used	Increase	Decline
Very rapid	40.0 percent or more	-40.0 percent or more
Rapid	30.0 percent to 39.9	-30.0 percent to -39.9
Moderate	15.0 percent to 29.9	-15.0 percent to -29.9
Slow	5.0 percent to 14.0	- 5.0 percent to -14.9
Little or no change	0 percent to 4.9	- 0 percent to - 4.9

The adjectives used to describe changes in employment requirements in Table I correspond to the ranges of percent change.

Table II[2]

Job opportunities	Prospective demand-supply relationship
Excellent	Demand much greater than supply
Very good	Demand greater than supply
Good or favorable	Rough balance between demand and supply
May face competition	Likelihood of more supply than demand
Keen competion	Supply greater than demand

[1]Occupational Outlook Handbook. 1974-75 edition, U.S. Department of Labor, Peter J. Brennen, Secretary, Bureau of Labor Statistics, Julius Shiskin, Commissioner, Bulletin 1785.

[2]Occupational Outlook Handbook. 1974-75 edition, U.S. Department of Labor, Peter J. Brennen, Secretary, Bureau of Labor Statistics, Julius Shiskin, Commissioner, Bulletin 1785.

Employment Settings

The major employers for the various occupations are listed, refer to state and local employment agencies.

Salary Range

The monographs provide salary comparisons in many occupations. Within each occupation there are many levels of earning. Earnings vary with experience, education, location, and institution. For some occupations salary information is not available. Users of this guide should check with local employers to find out about salary ranges in local areas. Salary ranges are quoted from Occupational Outlook Handbook, 1974-75, U. S. Department of Labor Bulletin 1785.

Additional Information

Many public, private, and professional agencies publish data and information on the various health professions.

DESIRABLE ATTRIBUTES FOR ALLIED HEALTH PROFESSIONS

Many of these attributes can be acquired. For careers which have direct patient contact:

- ability to work with sick patients requires: pleasant calm, cheerful manner;
- patient businesslike professional behavior;
- good speech and vocabulary;
- sound decision making abilities; and
- concern for total picture involving the patient.

Laboratory or technical careers call for:

- various degrees of manual dexterity;
- accuracy and precision and a certain eye for details;
- sound decision making abilities;
- normal vision; and
- desire to stay up-to-date in (discipline) or skills and knowledge.

All allied health careers required:

- ability to work with others;
- desire to be a first class professional person;
- ability to take on responsibility;
- honesty;
- accuracy;
- dependability; and
- empathy.

GLOSSARY

Definition of Terms

Credentialing

Accreditation is the process by which an agency or organization evaluates and recognizes a program of study or an institution as meeting certain predetermined standards or qualifications. It applies to institutions and their services or programs of study.

Certification is the process by which a non-governmental agency or association grants recognition to an individual who has met certain predetermined qualifications specified by that agency or association.

Licensure is the process by which an agency of the government grants permission to persons meeting predetermined qualifications to engage in a given occupation and/or use a particular title or grants permission to institutions to perform specified functions. (This is usually done at the state level).

Registration is the process by which qualified individuals are listed on an official roster maintained by a governmental or non-governmental agency.

Occupational Titles

Aide will be defined as those persons with specialized training of less than 2 years duration beyond high school, or on-the-job training.

Report of the Commission for the Study of Accreditation of Selected Health Educational Programs. (Washington, D.C.: S.A.S.H.E.P., 1972), ii.

Technologist or Therapist will be defined as those persons with educational preparation at the baccalaureate level of above.*

Technician or Assistant will be defined as those persons with educational preparation at the Associate degree level (2) years of college education or other formal education beyond high school)*.

*The exceptions are inhalation therapy technicians or inhalation therapists.

SELECTED ALLIED HEALTH PROFESSIONS

Dental Assistant

Dental Hygienist

Dental Laboratory Technician

Dietetic Technician

Dietitian

Certified Laboratory Technician

Medical Laboratory Technician

Cytotechnolgoist

Medical Technologist

Nuclear Medical Technologist

X-Ray Technologist or Radiologic Technician

Operating Room Technician (Surgical Technician)

Electrocardiographic Technician

Electroencephalographic Technician

Medical Assistant

Medical Record Technician

Medical Record Administrator

Optometric Assistant

Optometrist

Pharmacist

Physical Therapist Assistant

Physical Therapist

Respiratory (Inhalation) Technician

Respiratory (Inhalation) Therapist

[illegible]

Veterinarian

DENTAL ASSISTANT

Job Description

Dental assistants work alongside the dentist as the patient is examined and treated. While the dentist treats the patient, the assistant keeps the patient's mouth irrigated and hands the dentist the proper instruments. A dental assistant may be responsible for (1) preparing materials for making impressions and restorations; (2) exposing x-rays and processing dental x-ray film as directed by a dentist; (3) sterilizing and caring for dental instruments; and (4) filing and updating dental records. In addition, some dental assistants manage the office, answer the telephone, confirm appointments, send out monthly statements, order supplies, and maintain tax records.

Preprofessional Course Requirements

High school grade or equivalent. Courses include:

- Biology
- Typing
- Mathematics
- Chemistry

Credentialing

A certificate of competence is awarded by the Certification Board of the American Dental Assistants' Association after the candidate has acquired formal education and experience in a dental office. Certification is a continuing process based on continuing education. On-the-job training is an available option.

Occupational Outlook

Employment opportunities for qualified dental assistants are abundant and should remain so through the mid 1980's. This great need for dental

assistants is a result of (1) public health programs (i.e., Head Start and Medicaid) which enable more people to afford dental services; (2) greater participation in dental prepayment plans; and (3) a high turnover rate in the field.

Employment Settings

1. Individual dentists (private dental offices)
2. Group dental practices
2. Clinics
4. Hospitals
5. Health agencies
6. Federal government (Public Health Service, Veterans Administration, and the Department of the Army).

Salary Range

$7,000 - $9,000 annually as of 1975 depending on location, education and experienc

For Additional Information, Write

American Dental Assistants' Association
211 E. Chicago Avenue
Chicago, Illinois 60611

Division of Dental Health
Public Health Service
U.S. Dept. of H.E.W.
Washington, D.C. 20201

DENTAL HYGIENIST

Job Description

Dental hygienists are practicing members of the health team dedicated to helping individuals maintain oral health and prevent dental diseases. Dental hygienists provide dental services, dental health education, and nutritional counseling to patients as prescribed by the dentist.

Primarily, hygienists provide oral hygiene services; cleaning and polishing teeth, providing diagnostic assistance for the dentist, instructing in dental health education, and applying topical agents, such as fluoride, to the teeth. They sterilize instruments, maintain patients' records, and expose and develop dental X-ray films.

Preprofessional Course Requirements

High School Requirements include:

- A minimum 2.5 high school average (on a 4 point scale)
- One year of high school biology with at least C grade or better
- One semester of high school chemistry with at least C grade or better
- A score of at least 16 on the ACT (American College Test)

College Entrance Requirements

- A high school diploma
- Preprofessional college courses which include several years of mathematics, biology, chemistry, English, and history
- C average minimum

Credentialing

To practice dental hygiene, the graduate of an accredited program must become state licensed. Examination by the National Board of Dental Examiners sponsored by the American Dental Association is recognized by most states.

Hygienists who have passed this exam do not have to take the written te in a state board examination, but they do have to take the practical te The initials R.D.H. mean the hygienist has taken and passed the state l dental hygiene examination and is a registered dental hygienist. If a hygienist wishes to practice in a different state, he/she must pass the state's examination. At present, approximately 15 states grant license without further examination if the dental hygienist has already been li by certain other states.

Occupational Outlook

Employment opportunities are expected to be favorable through the 1980's. This can be attributed to (1) more group practice among dent (2) greater participation in dental prepayment plans; (3) increased de care programs for children; and (4) increased awareness of the importa of conscientiously applied dental programs.

Employment Settings

The majority of dental hygienists are employed in private dental Others are employed in the following institutions:

1. Public schools
2. State and local health clinics
3. Hospitals
4. Voluntary health agencies
5. Industrial plants
6. Schools of Dental Hygiene

Salary Range

$8,500 - $12,500 annually (1975)

Further Sources of Information

Division of Educational Services
American Dental Hygienist Association
211 East Chicago Avenue
Chicago, Illinois 60611

Division of Dental Health
Public Health Services
U.S. Department of H.E.W.
Washington, D.C. 20201

Each State Board of Dental Examiners can supply information on its licensing requirements.

DENTAL LABORATORY TECHNICIAN

Job Description

Using a high degree of manual dexterity, dental laboratory technicians make dentures (artificial teeth), crowns, bridges and other dental and orthodontic appliances. In order to make some dental appliances, dental laboratory technicians follow written instructions and use the impressions taken by dentists. This means making metal castings for dentures, constructing metal or porcelain crowns or inlays for partially destroyed teeth, finishing and polishing dentures, and making appliances to correct abnormalities such as cleft palates.

Dental laboratory technicians use specialized laboratory equipment, small hand tools, electric lathes, drills, and high-heat furnaces. Delicate tools are used to carve, shape, and bend the appliances being constructed.

Preprofessional Course Requirements

High school graduate or equivalent.

Credentialing

Examinee must pass a written and practical examination given by the National Board (a trust of the National Association of Dental Laboratories) for certification. There are basically two types of certified technicians: generalists and specialists. Generalists do all types of laboratory work: specialists may specialize in full or partial denture construction, ceramics or metal work, that is making crowns or bridges. Within these areas, work may range from semi-skilled to highly skilled depending upon the requirements of each job. On-the-job training is possible.

Occupational Outlook

Job opportunities for well-qualified dental laboratory technicians are

expected to be very good through the mid-1980's. Some of the factors which contribute to this forecast are: (1) dentists prefer and need more time to devote to treatment of patients, thus they are sending more laboratory work to commercial laboratory firms or are employing their own dental laboratory technicians; (2) the expansion of dental prepayment plans; and (3) increasing numbers of elderly people who need artificial dentures.

Employment Settings

1. Commercial laboratories
2. Agencies of the federal government (armed forces and Veterans Administration Hospitals and clinics)
3. Laboratories of private dental practitioners
4. Dentists' offices
5. A small number teach in dental schools

Salary Range

$6,000 - $8,000 annually depending upon experience and geographic location. (1975)

For Additional Information, Write:

American Dental Association
Council on Dental Education
211 E. Chicago Avenue
Chicago, Illinois 60611
(Information re: Training)

American Fund for Dental Education
211 E. Chicago Avenue
Chicago, Illinois 60611
(Information re: Scholarship)

National Association for Dental
Laboratories, Inc.
3801 Mt. Vernon Avenue
Alexandria, Virginia 22305
(Information re: Career opportunities in commercial labs and certification).

DIETETIC TECHNICIAN

Task Analysis

Dietetic technicians work under the supervision of a dietician or an administrator and consulting dietitian in food service administration and in meeting the therapeutic nutritional needs of individual patients. They maintain meal records, calculate modified diets, confer with dieticians concerning nutritional requirements, and discuss with patients their food preferences, both ethnic and personal.

The dietetic technician is a middle management position requiring more in-depth and technical skills than a food service worker. In addition to menu-planning, dietetic technicians may be responsible for management of food service systems, personnel supervision, safety, and sanitation.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- General mathematics
- Business arithmetic
- Biology
- Chemistry
- Typing

Credentialing

Effective June 1, 1975, the applicant must be a skilled worker in food service management or nutritional care who has successfully completed an associate degree program for dietetic technicians which meets the standards established by the American Dietetic Association.

Occupational Outlook

Employment opportunities for dietetic technicians should continue to be favorable through the mid-1980's

Employment Settings

1. Health care facilities
2. Hospitals
3. Schools
4. Other public and private institutions

Salary Range

$6,000 to $10,000 annually, (1975) depending upon location, size of institution, and level of responsibility.

For Additional Information, Write:

American Dietetic Association
430 North Michigan Avenue
Chicago, Illinois 60601
(312) 822-0330

American Dietetic Association
620 North Michigan Avenue
Chicago, Illinois 60601

DIETITIAN

Task Analysis

Dietitians plan and direct food service programs to provide nutritional care. Administrative dietitians apply nutritional science and management skills to group feeding operations. Clinical or therapeutic dietitians plan with physicians how to meet the needs of individual patients. They calculate modified diets, discuss food likes and dislikes with patients, and instruct them and their families in nutrition. Clinical dietitians may also work with patients who are not hospitalized, e.g. clinic patients. Teaching dietitians plan, organize, and conduct educational programs for patients, nursing students, medical and dental interns, dietetic interns, and food service workers. The programs are usually hospital affiliated. Research dietitians conduct studies and research projects in food and nutrition. Consultant dietitians, self-employed, with physicians offer special nutritional guidance to individual patients or offer nutritional care services to health facilities, private companies, industry, etc.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- Chemistry
- Biology
- Algebra
- Geometry
- Trigonometry

Credentialing

With a baccalaureate degree, the requirements for becoming a registered

dietitian (R.D.) include (1) completion of an approved dietitian internship, or two years of experience, or completion of a coordinated undergraduate program approved by the American Dietetic Association (ADA); (2) successful completion of a written examination; and (3) completion of a given number of hours of continuing education every five years.

Occupational Outlook

Employment opportunities for qualified dietitians are expected to be good through the mid-1980's due to (1) nutrition and food management needs of hospitals, extended care facilities, schools, industrial plants, and restaurants; (2) increased staff needs of community health programs; and (3) research in food nutrition.

Employment Settings

1. Hospitals
2. Public and private institutions (mental institutions, educational institutions, day-care centers and armed services educational institutions).
3. Restaurants and hotels
4. Universities and colleges.

Salary Range

$9,000 - $20,000 (1975) depending upon education and experience.

For Additional Information, Write:

American Dietitian Association
620 North Michigan Avenue
Chicago, Illinois 60611

The U. S. Civil Service Commission
Washington, D. C. 20415
(Re: Dietitians in Federal Government hospitals).

CERTIFIED LABORATORY TECHNICIAN

Job Description

Certified technicians perform clinical laboratory tests. These tasks are routine in nature and are conducted under the close supervision of a medical technologist or other person of higher qualifications on duty in the laboratory. Some of the tests which the technician may perform are: hematology, serology, urinalysis, bacteriology and, occasionally, clinical chemistry.

A certified technician performs the simpler, more routine tests in the laboratory so that the professional medical technologist can spend more time on the complex, highly technical laboratory procedures.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- Biology
- Chemistry
- Algebra
- Geometry
- Physics

Credentialing

Examinee must pass examination for Certified Assistant given under the direction of the Board of Certified Laboratory Assistants. Examinee may also become certified after examination by the Board of Registry of the American Society of Clinical Pathologists.

Occupational Outlook

The need is expected to expand moderately through the mid-1980's, as physicians make wider use of laboratory tests in routine physical checkups and in diagnosis and treatment of diagnosis.

Employment Settings

1. Hospitals
2. Clinics
3. Medical research laboratories
4. Group medical practices
5. Physician's offices

Salary Range

$6,000 - $8,000 annually (1975)

For Additional Information, Write:

American Society of Medical Technologists (HSMT)
710 Higgins Road
Park Ridge, Illinois 60069

American Society of Clinical Pathologists (ASCP)
Board of Registry
P. O. Box 4872
Chicago, Illinois 60680

MEDICAL LABORATORY TECHNICIAN

Job Description

Medical laboratory technicians perform a wide variety of clinical laboratory tests ranging from collecting blood specimens and staining slides, to analyzing chemical components of body fluids and concentrating specimens for parasite examination using diverse equipment ranging from microscopes to automated chemical analyzers.

Medical technicians work under the immediate supervision of a person of higher qualifications. However, when a technologist or another person of higher qualifications is on duty in the laboratory or available for immediate call, the medical laboratory technician may perform routine tests without direct immediate supervision.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- Algebra
- Geometry
- Chemistry
- Biology

Credentialing

Examinee must be a graduate of a medical laboratory school that is accredited by the Accrediting Bureau of Medical Laboratory Schools. The examinee should also have two years of combined school and laboratory experience. However, experience requirements need not be completed when the application is filed. Examinee must pass the American Medical Technologist (A.M.T.) registry examination to become certified.

Occupational Outlook

Job opportunities in this profession are good due to increased use of

automated laboratory test equipment and physicians' use of laboratory tests in routine checkups.

Employment Settings

1. Public health agencies
2. Hospitals
3. Clinics

Salary Range

$8,000 - $10,000 annually. (1975)

For Additional Information, Write:

American Medical Technologists
710 Higgins Road
Park Ridge, Illinois 60068

Board of Registry
American Society of Clinical Pathologists
Box 4872
Chicago, Illinois 60680

CYTOTECHNOLOGIST

Job Description

Cytotechnologists are trained in special laboratory techniques to detect changes in body cells, and thus aid in the early detection of diseases like cancer. A cytotechnologist learns to recognize minute abnormalities in the color, size, and shape of cell structures. Utilizing special dyes that accentuate the structures within the cell, cytotechnologists can detect altered or abnormal cells. These tasks are performed under the supervision of pathologists.

Preprofessional Course Requirement:

High school graduate or equivalent. Courses include:

- Biology
- Chemistry
- Physical science (optional)
- Algebra
- Geometry

Credentialing

Examinee must pass written Board of Registry of American Society of Clinical Pathologists examination for cytotechnologists.

Occupational Outlook

Employment opportunities for cytotechnologists are expected to be favorable through the mid-1980's due to increased research in human etiology.

Employment Settings

1. Hospitals
2. Medical laboratories including cytology laboratories
3. Research institutions

4. Medical centers

Salary Range

$8,000 - $20,000 (1975) depending upon education and experience

For Additional Information, Write:

Registry of Medical Technologists
P. O. Box 4872
Chicago, Illinois 60680

MEDICAL TECHNOLOGIST

Job Description

Medical technologists perform chemical, microscopic, bacteriologic, and other laboratory tests and procedures which aid physicians in preventing, detecting, diagnosing, and treating diseases. They perform blood counts, analyze body fluids, identify microbes, and process laboratory tests which are essential components of checkups. Medical technologists must be able to work independently and with accuracy and precision.

In small hospitals, medical technologists are expected to be able to work with equal competence in performing a variety of tests. However, in large laboratories, technologists usually work in one area. Some of the areas or specialty laboratories are biochemistry, parasitology, blood banking, microbology, hematology, and serology.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- Algebra
- Geometry
- Trigonometry
- Biology
- Chemistry
- Physics (Optional)
- Computer programming (Optional)

Credentialing

Examinee must have a bachelor of science degree in Medical Technology or a bachelor of science degree with a major in one of the biological sciences and one year of unsalaried approved laboratory experience.

Examinee must pass American Medical Technologists examination for Medical Technologists (ASMT) or American Society of Clinical Pathologists (ASCP) examination for Medical Technologists.

Occupational Outlook

Moderate expansion is expected in this job market as technologists are needed to fill supervisory positions in laboratories where they are required by state licensing or third party health insurance regulations.

Employment Settings

1. Public health agencies
2. Research laboratories
3. Hospitals
4. Clinics

Salary Range

$10,000 - $20,000, (1975) depending upon qualifications, experience, and responsibilities. Graduate training (Master's Degree) enhances earning potential.

For Additional Information, Write:

American Medical Technologist
710 Higgins Road
Park Ridge, Illinois 60668

Board of Registry of the American
Society of Clinical Pathologists
Box 4872
Chicago, Illinois 60680

NUCLEAR MEDICAL TECHNOLOGIST

Job Description

Nuclear medical technologists work in the new field of nuclear medicine utilizing radionuclide procedures for the diagnosis and utilize treatment of diseases in humans. In addition, they prepare solutions, materials, and instruments for sterilization, assist physicians in the preparation and administration of radiopharmaceuticals to patients, assist in equipment calibration, and in radioisotope assay operations. They also have administrative responsibilities for supplies and records of radioisotope receipts, usage, storage, and disposal.

Preprofessional Course Requirements

High School Courses include:

- Algebra
- Trigonometry
- Geometry
- Physics
- Chemistry
- Biology

Credentialing

Examinee may become certified by the American Registry of Radiologic Technologists when a written registry examination is passed, in addition to completing the appropriate level of education and/or experience.

Occupational Outlook

The employment outlook for Nuclear Medical Technologists is expected to be favorable through the mid-1980's due to increased research in human disease etiology, particularly cancer. Presently, the demand for qualified personnel is greater than the supply, and the need is increasing.

Employment Settings

Nuclear medical laboratories in:

1. Hospitals
2. Medical centers
3. Research centers

Salary Range

$9,000 - $20,000 , 1975 depending upon education and experience.

For Additional Information, Write:

Registry of Medical Technologists (ASCP)
Box 4872
Chicago, Illinois 60680

The American Registry of Radiologic Technicians
2600 Wayzata Boulevard
Minneapolis, Minnesota 55405

RADIOLOGIC TECHNOLOGIST OR X-RAY TECHNOLOGIST

Job Description

Working under the supervision of a physician, the radiologic technologist is concerned with the proper operation of X-ray equipment, preparation of patients for various types of diagnostic procedures, making of X-ray exposures, aiding radiologists in fluoroscopy, and processing of X-ray films in small institutions and in doctors' offices, the radiologic technologist may also keep records of patients and their films.

Some X-ray technologists are responsible for therapeutic treatment. Under the supervision of a radiologist, the therapy technologist aids in treating disease by exposing affected areas of a patient's body to prescribed doses of X-ray or other forms of ionizing radiation.

Preprofessional Course Requirements

High School graduate or equivalent. Courses include:

- Algebra
- Geometry
- Physics
- Chemistry
- Biology
- Typing

Credentialing

Upon successful completion of a two year training program that is approved by the American Medical Association (AMA), or after having received a Bachelor of Science degree in radiologic technology, an examinee is eligible to take the American Registry of Radiologic Technologists' written examination. Once they pass this examination, they become a registered radiologic technician (ARRT). To become certified, they must complete an additional year of com-

bined classroom study and work experience.

Occupational Outlook

Job opportunities for radiologic technologists are expected to be favorable through the mid-1980's due to: (1) increased reliance on X-ray equipment to diagnose and treat diseases, (2) expansion of prepayment medical programs, and (3) speculation that radiotherapy will find increased uses.

Employment Settings

1. Private or public hospitals
2. Physicians' offices
3. Privately operated medical clinics
4. Public health laboratories
5. Industrial plants
6. Dentists' offices or dental clinics
7. Agencies of the federal government

Salary Range

$8,000 - $15,000 (1975) depending upon experience and education.

For Additional Information, Write:

The American Registry of Radiologic Technicians
2600 Wayzata Boulevard
Minneapolis, Minnesota 55405

The American Society of Radiologic Technologists
645 North Michigan
Chicago, Illinois 60611

The American Society of Radiologic Technologists
537 South Main Street
Fond due Lac, Wisconsin 54935

OPERATING ROOM TECHNICIAN (SURGICAL TECHNICIAN)

Job Description

Operating room technicians, or surgical technicians, work under the supervision of registered nurses or physicians. They aid surgeons and anesthesiologists before, during, and after surgery and assist with patient care and related services in the operating room. Depending upon training and ability, surgical technicians may assist in minor or major surgery. In addition, they prepare supplies and equipment for use in surgery and perform other duties vital to the maintenance of a safe, therapeutic environment for the patient in the surgical unit.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- Biological sciences

Credentialing

After examinee graduates from an accredited training program, he must pass a comprehensive examination for certified operating room technicians (CORT). The examination is given by the Association of Operating Room Technicians.

Occupational Outlook

Employment opportunities for operating room technicians are expected to be excellent through the mid-1980's since: (1) more routine nursing responsibilities are being delegated to operating room technicians, and (2) the expansion of prepayment insurance programs are enabling more people to afford medical care.

Employment Settings

1. Hospitals

2. Patient care institutions.

Salary Range

$6,000 - $9,000 (1975) annually depending upon education, experience, training, and geographic location.

For Additional Information, Write:

Association of Operating Room
Technicians, Inc.
1100 W. Littleton Boulevard
Littleton, Colorado 80120

ELECTROCARDIOGRAPHIC TECHNICIAN

Job Description

Electrocardiographic technicians play vital roles in health care maintenance. Under the direction of a physician, they take and process cardiograms (EKG). Electrocardiograms are graphic heartbeat tracings which are produced by an electrocardiograph. The electrocardiograph records patients' heart action on a continuous roll of paper. Electrocardiographic technicians are responsible for clipping and assembling the electrocardiograms for interpretation by physicians who are usually cardiologists or heart specialists.

Electrocardiographic technicians must be thoroughly familiar with the electrocardiograph and its' general maintenance. If electrical and mechanical complications develop while they are taking electrocardiograms, they must be able to detect and correct the problem(s). They must determine if a patient's problems warrant the attention of a physician.

Other responsibilities of the electrocardiographic technicians are: making photocardiograms (recordings of the sounds of the heart valves and blood passing through them), scheduling appointments, and maintaining patients' EKG files.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- Typing
- Biological science
- Physical sciences

Credentialing

Presently, electrocardiographic technicians do not have to be certified.

Occupational Outlook

Employment opportunities for electrocardiographic technicians are expected to be favorable through the mid-1980's due to: (1) increased use of electrocardiograms, (2) routine use of EKGs by some physicians in physical examinations of patients over 45 years of age. Large institutions may employ several EKG technicians full-time. However, a considerable number of positions are part-time.

Employment Settings

1. Hospitals (cardiology departments)
2. Physicians' offices
3. Health agencies
4. Clinics

Salary Range

$6,000 - $9,600 annually (1975)

For Additional Information, Write:

American Hospital Association
840 North Lake Shore Drive
Chicago, Illinois 60611

ELECTROENCEPHALOGRAPHIC TECHNICIAN

Job Description

Electroencephalographic technicians help diagnose brain disease and infections through a system which records in graphic form the electrical activity of the brain. This system is called electroencephalography and the graphs which it produces are called electroenphalographs (EEGs). Through the use of EEGs, the diagnoses of epilepsy and brain tumor are made easier.

EEGs are also indispensable in the following areas: (1) acquiring organs for transplant operations (the EEGs record the exact time brain functions cease), and (2) cerebral vascular strokes (EEGS allow calculation of the damage that results from a stroke and the extent of recovery that may follow).

The EEG technician is responsible for carrying out the procedures necessary to obtain the EEG graphs. This is done by locating areas on the patient's head and attaching the electroencephalograph electrodes to them. Neurologists, psychiatrists, and other specialists are responsible for interpreting the electroencephalographs.

In addition, the technicians are trained to recognize acute symptoms of patients, such as convulsive seizures which may occur during the test so they may summon medical assistance. The EEG technicians must recognize when outside interferences are recorded, and know whether the equipment is functioning properly in order to obtain a technically accurate and valid recording. tained.

Preprofessional Course Requirements

High School graduate or equivalent. Courses include:

- Biological Sciences
- Physical Sciences

Credentialing

The American Board of Registration of Electroencephalographic technologists (ABRET) has developed a registration examination that is administered periodically on a voluntary basis.

The examinee should have one year of training and one year of clinical experience before taking the examination. Upon successfully completing written and oral examinations, he/she may become a registered electroencephalographic technician. Registration is not a requirement for employment but it often helps one get a better-paying job.

Occupational Outlook

Employment opportunities for EEG technicians are expected to be favorable through the mid-1980's. Some of the reasons for this prediction are: (1) increased reliance on EEGs for diagnosing and monitoring patients with brain disease, (2) increased use of EEGs during surgery (e.g. to acquire organs for transplant operations), (3) expanded medical services due to new medical techniques and drugs, (4) increased use of medical prepayment plans, and (5) a considerable number of EEG technicians are employed on a part-time basis.

Employment Settings

1. Large Hospitals
2. Medical Centers

Salary Range

$6,600 - $9,800 annually, (1975) annually, depending upon experience and training.

For Additional Information, Write:

American Board of Registration of
Electroencephalographic Technologists
Cleveland Clinic
900 Euclid
Cleveland, Ohio 44105
Re: Registration

American Hospital Association
840 North Lake Shore Drive
Chicago, Illinois 60611

MEDICAL ASSISTANT

Job Description

Medical assistants aid the practicing physicians in offices, in examining rooms, and in laboratories. Medical assistants may prepare patients for examination, determine and record patients' histories, and review physicians instructions for care with patients. In addition, the medical assistant may assume clerical functions such as completion of insurance forms, billing, correspondence, scheduling appointments, and purchasing and maintaining supplies and equipment. The ability to perform clinical tasks under the supervision of a physician distinguishes medical assistants from the medical secretaries.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- Mathematics
- Science
- Business courses

Credentialing

The American Association of Medical Assistants (AAMA) awards certificates to medical assistants who pass a written examination, have at least a high school education, and three years of experience in the field. Only one year of experience is required for those with an associate degree.

Occupational Outlook

Employment opportunities for medical assistants are expected to be favorable through the mid-1980's. Some of the reasons for this are: (1) anticipated increase in the number of physicians in prepaid patient care, (2) increasing volume of paper work, (3) increasing percentage of older people requiring medical services, and, (4) expanded coverage under prepaid insurance pro-

grams, enabling more people to afford medical services.

Employment Settings

1. Hospitals
2. Medical clinics
3. Physicians' offices
4. Medical schools
5. Pharmaceutical companies

Salary Range

$5,000 to $8,000 annually (1975)

For Additional Information, Write:

American Association of Medical Assistants
One East Wacker Drive
Suite 1510
Chicago, Illinois 60601

American Medical Technologists
710 Higgins Road
Park Ridge, Illinois 60068

MEDICAL RECORD TECHNICIAN

Job Description

Medical record technicians are responsible for maintaining permanent medical records on patients' conditions and treatment procedures in hospitals, health care institutions, and clinics. These records are invaluable to doctors, public health personnel, insurance companies, and hospital administrators. Medical record technicians assist the medical record administrator with the technical work of maintaining medical records, reports, disease indexes, and the hospital statistics required in hospitals and clinics.

In addition, medical record technicians may also supervise the day-to-day operation of the medical record department, take records to court, and channel the flow of health information to all departments in the medical facility. Sometimes, they transcribe medical reports of operations, X-ray or laboratory examinations, or special treatment given to patients.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- Biology
- Chemistry
- Business subjects

Credentialing

Examinees must pass an examination given by the Accredited Record Technician (ART). They must also be a graduate of a college or hospital program which has been accredited by the American Medical Association and the American Medical Record Association. The programs may range in length from a 10-month certificate program to a 2-year associate degree program.

Occupational Outlook

Employment of medical records technicians is expected to grow very rapidly through the mid-1980's due to (1) a continued increase in the use of health insurance, Medicare and Medicaid; (2) rising medical care standards and the accompanying need for more complete medical records; (3) an increase in new types of medical facilities; and (4) the nationwide shortage of medical records administrators.

Employment Settings

1. Hospitals
2. Clinics
3. Health care agencies

Salary Range

$6,000 - $12,000 annually (1975)

For Additional Information, Write:

American Medical Record Association
John Hancock Center
Suite 1850
875 N. Michigan Avenue
Chicago, Illinois 60611

MEDICAL RECORDS ADMINISTRATOR

Job Description

Medical records administrators supervise the acquisition of complete medical records, plan record retention and retrieval systems and supervise their maintenance by the staff. Medical records administrators also plan information acquisition systems (designing forms, scheduling, routing, evaluation), and advise the medical facility's administrator on the reasibility of implementing them. In addition, they train other members of the medical records staff, compile medical statistics required by State or national health agencies, and supervise the work of the medical records staff in the preparation and analysis of records and reports, on patients' illnesses and treatment.

Preprofessional Course Requirements

High school graduate or equivalent.

Credentialing

Examinee must be a graduate of an approved school of medical record administration and pass the national registration examination given by the American Medical Records Association (AMRA).

One-year certificate programs are available for those who have bachelor degrees and have taken required courses in the liberal arts and biological sciences.

Occupational Outlook

Employment opportunities for qualified medical records administrators are expected to be excellent through the mid-1980's because of: (1) the demand for qualified medical records administrators for new hospitals, (2) the increased need for qualified individuals to standardize health records and

develop new medical information systems.

Employment Settings

1. Hocpitals
2. Clinics
3. Insurance companies
4. Nursing homes
5. Medical research organizations
6. Government agencies

Salary Range

Median salary range is $9,500 - $15,000 depending on geographic location. Advanced education and responsibilities may increase salary to over $20,000. (1975)

For Additional Information, Write:

American Medical Record Association
875 North Michigan Avenue
Suite 1850
Chicago, Illinois 60611

OPTOMETRIC ASSISTANT

Job Description

Optometric assistants prepare patients for eye examinations and help optometrists test patients for visual acuity, color blindness, and tension or pressure on the eyeball. They measure patients for correct sizes of eyeglass frames and help patients select frames that complement their faces. In addition, they adjust finished eyeglasses. They also assist the optometrist in fitting and dispensing prescription spectacles, instructing in the hygiene, care, placement, and removal of contact lenses, and in vision screening. Optometric assistants may be responsible for keeping patients' records, scheduling appointments, handling correspondence, filing and keeping an inventory of optometric supplies.

Some duties of optometric assistants are laboratory ones, such as: inserting lenses in frames, repairing frames, and adjusting contact lenses and conventional glasses.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- Mathematics
- Science
- Business courses

Credentialing

Not yet established.

Occupational Outlook

Employment opportunities for optometric assistants are expected to be excellent through the mid-1980's due to: (1) an increasing number of people requiring optometric services, and (2) the expansion of health care programs

which enable more people to afford these services.

Employment Settings

1. Optometrists' offices
2. Clinics
3. Hospitals

Salary Range

$5,000 to $7,000 annually. (1975)

For Additional Information, Write:

American Optometric Association
7000 Chippewa Street
St. Louis, Missouri 63119

OPTOMETRIST

Job Description

Optometrists examine eyes to conserve and improve vision. Their specialized training and education enable them to make a complete vision analysis and determine the efficiency of the eyes. They examine patients' eyes for vision problems, diseases, and other abnormal conditions. If deficiencies are found, the optometrist prescribes eyeglasses, contact lenses, or other optical aids. In addition, he/she may prescribed corrective eye exercises or treatment not requiring drugs or surgery.

Most optometrists are in general practice, but some specialize in work with the aged or with children. A small percentage of optometrists teach or do research.

Preprofessional Course Requirements

High School graduate or equivalent. Courses include:

- English
- U. S. History
- Algebra
- Geometry
- Biological Sciences
- Physical Sciences
- Foreign Language

Credentialing

All states and the District of Columbia require that optometrists be licensed. Examinee must be a graduate of an accredited optometric school and pass a state board examination. In some states, applicants are permitted to substitute for state board of optometry examinations the National Board of Optometric Examinations, which is given during the fourth year of optometric school.

Occupational Outlook

Employment opportunities for optometrists are expected to be favorable through the mid-1980's. The demand for optometrists is expected to exceed the supply of new graduates for at least six (6) years.

Employment Settings

1. Private practice
2. Industry
3. Armed forces
4. Specialized hospitals
5. Eye clinics
6. Teaching (in schools of optometry)

Salary Range

$13,000 (1975) and up depending upon location and specialization.

For Additional Information, Write:

American Optometric Association
7000 Chippewa Street
St. Louis, Missouri 63119

PHARMACIST

Job Description

Pharmacists must understand the composition, chemical properties, manufacture, and use of drugs. This knowledge qualifies them to dispense drugs and medicines prescribed by medical practitioners; physicians, dentists, and veterinarians. It also enables them to instruct people on the use of prescribed and unprescribed medicines. Pharmacists spend a small percentage of their time compounding (mixing ingredients to form powders, tablets, capsules, ointments, and solutions). Other duties of pharmacists are testing drugs for purity and strength, and advising physicians on the proper selection and use of medicines.

Preprofessional Course Requirements

High School graduate or equivalent. Courses include:

- Chemistry
- Biology

Credentialing

After graduating from an accredited college of pharmacy a state license is granted after the examinee passes an examination given by the Board of Pharmacy in the state where he/she plans to practice.

Occupational Outlook

The employment outlook for pharmacists is expected to be very good through the mid-1980's due to: (1) new pharmacies in residential and suburban centers, (2) expansion of Medicaid and other insurance programs, and (3) increasing need for qualified pharmacists.

Employment Settings

1. Community drug stores
2. Industry
3. Government agencies
4. Hospital
5. University teaching and research
6. Editors and writers (pharmaceutical journals)

Salary Range

$12,000 (1975) annually and up.

For Additional Information, Write:

American Association of Colleges of Pharmacy
4630 Montgomery Avenue
Bethesda, Maryland 20014

National Association of Retailed Druggists
1 East Wacker Drive
Chicago, Illinois 60601

PHYSICAL THERAPIST ASSISTANT

Job Description

Physical therapist assistants work under the supervision of professional physical therapists. Along with physical therapists they work to rehabilitate persons who have muscle, nerve, joint, and bone diseases or injuries. They help physical therapists: (1) perform tests on patients, (2) evaluate the patients' therapeutic needs, (3) prepare treatment care plans, and (4) administer the treatment. They operate therapy equipment that applies heat, cold, sound, and light. Assistants also help patients prepare for and perform therapeutic exercises and other activities (e.g., walking, climbing stairs). In addition, physical therapist assistants help physical therapists to fit artificial limbs, splints, and braces.

Preprofessional Course Requirements

High School graduate or equivalent. Courses include:

- Biological sciences
- Physical sciences

Occupational Outlook

Job opportunities for physical therapist assistants are expected to be excellent through the mid-1980's since: (1) there is increased public awareness of the necessity for rehabilitation, (2) an increase in the number of nursing homes which provide therapeutic services for the elderly, and (3) expanded physical therapy services in hospitals, nursing homes, and health and rehabilitation centers.

Employment Settings

1. General hospitals
2. Rehabilitation centers

3. Specialized hospitals

4. Clinics

5. Military services

6. Schools for the handicapped

7. Teaching, administration, and research

Salary Range

$6,000 - $8,000 (1975) annually depending upon experience.

For Additional Information, Write:

The American Physical Therapy Association
1156 15th Street, S.W.
Washington, D. C. 20005

American Physical Therapy Association
1790 Broadway
New York, New York 10010

PHYSICAL THERAPIST

Job Description

Physical therapists attend persons who are afflicted with muscle, nerve, joint, and bone diseases (e.g. crippled children, people with arthritis). They also help people who have sustained severe injuries (e.g. victims of accidents - fire, automobile, etc.). Physical therapists work to restore function to affected areas and prevent greater disability. Physical therapists teach patients how to walk on crutches, to use artificial limbs, and to perform therapeutic exercises for improvement of strength, coordination and function. Treatment programs involve the use of massage and treatment modalities such as heat, light, cold, water, electricity, and ultra sound. Under the direction of a physician, the therapist evaluates the patient's needs and prepares a treatment care plan for him. The physical therapist's goal is to help the patient live as normal a life as possible.

Preprofessional Course Requirements:

1. High School graduate or equivalent. Courses include:
   a. Geometry
   b. Trigonometry & algebra
   c. Chemistry
   d. Physics
   e. Biology
   f. Psychology
2. College:
   a. Biological Sciences
   b. Physical Sciences

c. Social Sciences

d. Methods of therapeutic treatment

Credentialing

Applicants for a license must have a degree or certificate from a school of physical therapy approved by the Council on Medical Education of the American Medical Association in conjunction with the American Physical Therapy Association. A year of supervised experience following graduation can be extremely profitable, and, in some instances, is a requirement for employment. To become licensed, examinee must pass a state board examination that is administered by the American Registry of Therapists.

Occuptional Outlook

Employment opportunities for physical therapists are expected to be excellent through the mid-1980's because of increased public recognition of the importance of rehabilitation. Other contributing factors are: (1) expansion of programs for crippled children, (2) opening of more health care facilities for the elderly, and (3) the increasing number of patients in nursing homes.

Employment Settings

The majority of therapists are employed in general hospitals and rehabilitation centers. However, positions are available in the following institutions:

1. Specialized hospitals
2. Schools for the handicapped
3. Clinics
4. The Military Services
5. State and Public Health Agencies

Salary Range:

$9,000 - $25,000 (1975) depending on experience and training.

For Additional Information, Write:

American Physical Therapy Association
1790 Broadway
New York, New York 10010

American Physical Therapy Association
1156 Fifteenth Street, N. W.
Washington, D. C. 20036

RESPIRATORY (INHALATION) TECHNICIAN

Job Description

Respiratory technicians are responsible for setting up; operating, and maintaining a wide range of equipment such as oxygen tents, resuscitators, iron lungs (respirators), and incubators. These duties performed by respiratory technicians (1) help facilitate breathing, (2) administer oxygen and other gases, and (3) apply medications that provide patients with proper moisture. Technicians must make sure that the equipment is working properly at all times. They must also be aware of the patients' reactions while they are using the equipment to treat them.

In addition to setting up, operating, and maintaining equipment, respiratory technicians show patients how to use equipment at home and keep records of the cost of materials and charges to patients.

Preprofessional Course Requirements

High school graduate or equivalent. Courses include:

- Mathematics (2 years minimum) (Algebra & geometry)
- Biology
- Chemistry

Credentialing

In order to become certified by the Technician Certification Board (T.C.B.), one must meet the following requirements:

1. complete clinical training
2. demonstrate technical competence
3. demonstrate competency by passing a written examination
4. become a member of the American Association of Inhalation Therapy which requires 2 years of supervised experience.

Occupational Outlook

The employment outlook for inhalation technicians is expected to be very good through the mid-1980's due to increased acceptance and use of inhalation therapy. Many technicians will be hired to relieve nurses and other personnel now performing respiratory work.

Employment Settings

1. Hospitals
2. Clinics

Salary Range

$6,000 - $10,000 (1975) annually

For Additional Information, Write:

American Association of Inhalation Therapist
3554 Ninth Street
Riverside, California 92501

National Board for Respiratory Therapy
1900 W. 47th Street
Suite 124
Westwood, Kansas 66205

RESPIRATORY (INHALATION) THERAPIST

Job Description

Respiratory therapists are responsible for the technical details of oxygen administration. They use therapeutic techniques and equipment (e.g., iron lungs, oxygen tents, incubators, resuscitators) to supply the human body with an adequate amount of oxygen and help it rid itself of carbon dioxide. Most respiratory therapists' duties revolve around the treatment of heart and lung ailments, such as cardiac failure, hemorrhage, shock, chronic asthma, cerebral thrombosis, and emphysema.

Under medical supervision some duties include administering various gases and aerosol inhalants, demonstrating therapeutically beneficial breathing exercises, and assisting with long-term continuous artificial ventilation. Respiratory inhalation therapists have more in-depth knowledge of physiology, pharmacology, anatomy, and clinical medicine than respiratory inhalation technicians. Therefore, they have greater responsibility in performing therapeutic procedures, and maintaining and repairing equipment. They may also have supervisory responsibility over technicians and aides. In addition, respiratory therapists keep records of the cost of materials and charges to patients, and maintain and repair equipment.

Preprofessional Course Requirements

High school graduate or equivalent

Two years of mathematics and a minimum of one year of science. Courses include:

- Algebra
- Geometry
- Chemistry

- Physics
- Biology

Credentialing

Before examinee takes registry examinations, he must possess an associate degree from an American Medical Association (AMA) approved program and 1 year of clinical experience. Then the examinee must pass written and oral registry examinations given by the American Registry of Inhalation Therapists (ARIT).

Occupational Outlook

Employment opportunities for respiratory therapists are expected to be favorable through the mid-1980's mainly due to the increasing number of inhalation thereapy departments being established in hospitals.

Employment Settings

1. Hospitals
2. Clinics
3. Nursing care facilities
4. Doctors' offices
5. Ambulance services

Salary Range

$7,000 - $16,000 (1975) per year, depending upon education, experience, training, responsibilities, or nature of the position.

For Additional Information, Write:

American Association for
Respiratory Therapy
7411 Hines Place
Dallas, Texas 75325

The Secretary
The American Association
for Inhalation Therapy
3554 Ninth Street
Riverside, California 92501

American Association of
Inhalation Therapy
Suite 316
4076 Main Street
Riverside, California 92501

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SANITARIAN

Job Description

Sanitarians, also known as environmentalists, are specialists in environmental health. They work to insure the cleanliness of food and liquids (e.g. beverages, dairy products, and water). They inspect the processing and handling of foods and liquids served in restaurants, hospitals, and other institutions to determine if everything is being done in accordance with sanitation rules and regulations. They collect samples of air and water to test them for pollutants. Sanitarians conduct tests to determine the nature and causes of pollution, then suggest methods to eradicate the pollutants. They also direct and investigate problems involving sewage and disposal, and may supervise the treatment and disposal of sewage, refuse, and garbage.

In large urban areas, sanitarians may specialize in the areas of waste control, air pollution, food sanitation, institutional sanitation, and occupational health. In rural areas and small cities, sanitarians may have a diverse and wide range of environmental health duties.

Preprofessional Course Requirements

High School graduate or equivalent. Courses include:

- Mathematics
- Chemistry
- Physics
- Biology

Credentialing

Most states require that sanitarians be registered. To be considered for

registration, an applicant must have a bachelor's degree, preferably in environmental health, however, a degree in any environmental, life, or physical science is generally acceptable.

Occupational Outlook

Employment opportunities for sanitarians who have a bachelor's degree in environmental health are expected to be very good through the mid-1980's due to (1) growth of industries and (2) increasing public concern with health hazards (e.g. air pollution).

Employment Settings

1. Food and dairy industry
2. Industrial plants
3. Government agencies
4. Sales organizations
5. Sanitation consulting firms

Salary Range

$9,000 - $30,000 (1975) depending upon education, experience, and specialization.

For Additional Information, Write:

American Public Health Association
1015 Eighteenth Street, N. W.
Washington, D. C.

International Association of Milk,
Food and Environmental Sanitarians
Blue Ridge Road
P. O. Box 437
Shelbyville, Indiana 46176

Division of Allied Health Manpower
Bureau of Health Professions Education
and Manpower Training
National Institutes of Health
9000 Rockville Pike
Bethesda, Maryland 20014
(Stipends for graduate study)

National Environmental Health Association
1600 Pennsylvania Street
Denver, Colorado 80203

VETERINARIAN

Job Description

Veterinarians specialize in veterinary (animal) medicine. They perform a broad scope of duties. They are actively engaged in diagnosing, treating, and controlling diseases and injuries among many species of animals. They perform surgery, treat injuries, prescribe and administer drugs, medicines, and vaccines to poultry, domestic livestock, and pet animals.

Veterinarians who are in public health inspect poultry, meat, and other foods. They work to prevent the outbreak and spread of diseases which may be transmitted and cause human illness. They also inspect imported animals and animal products at U. S. ports of entry.

Approximately 50% of all veterinarians are engaged in farm animal practice. They work to control and eliminate diseases of livestock and poultry. They are also responsible for testing meat, meat products, milk, and milk products to make sure they are free from disease and meet government standards.

Other areas open to veterinarians are: (1) research work for government agencies, educational institutions, private industry, drug manufacturers, etc., (2) teaching in veterinary colleges, and (3) as military veterinarians - conducting studies involving space flights and travel, nuclear energy, etc.

Preprofessional Course Requirements

No less than two years of pre-veterinary college work in the physical and biological sciences. Courses include:

- Biology
- Chemistry
- Physics
- Anatomy and Physiology

Credentialing

A veterinarian must have a license to practice anywhere in the United States. After having earned a Doctor of Veterinary Medicine (D.V.M.) degree, an examinee must pass a state board examination to become licensed. Some states also require that examinee have some practical experience under the supervision of a licensed veterinarian before becoming licensed.

Occupational Outlook

Employment opportunities for veterinarians are expected to be favorable through the mid-1980's due to: (1) a need for more livestock and poultry to feed a rapidly expanding population, (2) a growing pet population, and (3) an increase in veterinary research.

Employment Setting

1. Government agencies
2. Educational institutions
3. Non-profit research institutions
4. Army
5. Air Force

Salary Range

$15,000 (1975) and up to start. Good potential for growth depending upon the location, etc.

For Additional Information, Write:

American Veterinary Medical Association
600 South Michigan Avenue
Chicago, Illinois 60605

Agricultural Research Service
U. S. Dept. of Agriculture
Hyattsville, Maryland 20782

Animal and Plant Health Inspection Service
Personnel Division
12th and Independence Avenue, S. W.
Washington, D. C. 20250
(Employment Information)

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